

Corporate R&D Programs Working Group

31 March – 1 April 2009

Working Group Task

- Develop a recommended process, or improvements to existing processes, for identifying and prioritizing the development of computer-based tools used for ship design synthesis, analysis, and design evaluation.
- Recommend appropriate roles for government, academia, and industry; including issues of intellectual property, configuration control, VV&A, export controls, and dual use.
- Develop strategies for obtaining funding to improve our design tools.

Realizations

- We designed many good ships with primitive tools. These ships continue to make up the core of the fleet.
- Order of precedence:
 1. Hire and train good people.
 2. Develop, and clearly articulate the ship design and analysis process.
 3. Develop tools.

Prioritization

- Develop a recommended process, or improvements to existing processes, for identifying and prioritizing the development of computer-based tools used for ship design synthesis, analysis, and design evaluation.
 - Consult existing and anticipated guidance: Sullivan Memo, Tools roadmap.
 - Baseline the existing process. What are the known problems?
 - Survey TWHs, SDMs, Warfare Center, Shipyards
 - How well can we do with existing tools and planned improvements?
 - Apply LEAN principles; theory of constraints, etc.
 - Understand the critical path
 - Design Structure Matrix
 - Develop business case for proposed tools investments.
 - Quantify cycle time reduction, compared to an optimal process using existing tools
 - Quantify Value of information.
 - Quantify savings through reduced physical testing.

Roles

- Recommend appropriate roles for government, academia, and industry; including issues of intellectual property, configuration control, VV&A, export controls, and dual use.
- Government
 - Developing unique tools
 - Conducting analysis to support government decisions.
 - Specs, standards, interfaces
 - Active engagement with industry and academia
- Academia
 - Training developers and users.
 - Demonstrating what's possible.
 - Not configuration control, code maintenance, etc.
- Industry (Developers and analysis houses)
 - General use software – seat licenses.
 - Contract design / analysis
 - Unique expertise bundled with the software.
 - Work with government as a contract developer or trusted agent.
- Industry (Shipyards)
 - Detailed design and analysis using both general purpose CAD and special purpose tools.
 - Must also be proficient in earlier stages of design.

No single business model is right in all circumstances!

Funding Strategies



Funding Streams		Decision Frequency	Restriction(s) - Business Rules
POM (Program of Record)	**	Bi-annual (POM cycle)	OPNAV endorsement
SBIR	**	3X year	S&T; Small Business
STTR	**	Annual	S&T; Small Business plus Non-profit
NSRP	**	Annual	Ship production relationship
PEOs	**	Annual	Program focus
CREATE	*	Continuous	DoD; HPCMO
MURI	*	Annual	
MANTECH	*	Annual	Ship production relationship
ONR Swampworks	*	Continuous	
ONR D&I	*	Continuous	
NAVSEA SETA	*	Annual	NAVSEA Tech Authority (R&D / O&MN)
WC "ILIR"	*	Annual	Warfare Center inhouse projects
Joint Agency Program	*	Annual	
Innovative Naval Prototype		Bi-annual (POM cycle)	Game-changing prototype
Future Naval Capability		Annual	TOG; PEO Xsition
Scholarships		Annual	
RTT TTI Programs		Annual	
Foreign Comparative Test (FCT)		Annual	Purchase of foreign 'system' if satisfactory
NSF			
DARPA			"DARPA Hard"
NIST TIP			Technology to benefit US economy
HMPCO PETTT			Software to exploit HPCs
PEO Ships FSST Alt			
OPNAV N81 WCMO		Annual	Future force planning
Navy Mod & Sim Office (NMSO)			
DOE REPSEA			Offshore industry focus
Industry IRAD			
NOAA			
NASA			